UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,261	04/07/2004	William N. Partlo	2000-0086-15	7502

7590 01/12/2006

William C. Cray
c/o Cymer, Inc.
Legal Dept. - M/S 4-2C
17075 Thornmint Court
San Diego, CA 92127-2413

EXAMINER	
UNELUS, ERNEST	
ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/820,261	PARTLO ET AL.	
	Examiner	Art Unit	
	Ernest Unelus	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *07 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ~~04/07/2004~~. 11/17/00
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The abstract of the disclosure is objected to because it should contain one single paragraph. Correction is required. See MPEP j 608.01(b).

Claim Objections

Claim 16 is objected to because of the following informalities: claim 1 should be -claim 15-. Appropriate correction is required. Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15 and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Osamu (JP 4314374).

With respect to claims 15 and 46, Osamu discloses on figure 1 a method of bandwidth control of a narrow band gas discharge laser having based line narrowing unit with grating (30) defining a grating face comprising the step of forcing flow of helium gas across said grating face (English Abstract of Osamu).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 16, 17, 47, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osamu as applied to claims 15 and 46 above.

With respect to claims 16 and 47, Osamu discloses on figure 1 substantially all steps of a method set forth in the claimed invention except said gas flow being less than 20 liters per minute. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to Osamu by having said gas flow being less than 20 liters per minute for the purpose of reducing fluctuation of beam profile and acquiring light of stable output (Abstract of Osamu), since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to claims 17 and 48, Osamu discloses on figure 1 substantially all steps of a method set forth in the claimed invention except gas flow being between 1 and 8 liters per minute. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to Osamu by having said gas flow being between 1 and 8 liters per minute for the purpose of reducing fluctuation of beam profile and acquiring light of stable output (Abstract of Osamu), since it has been held

that where the general conditions of a claim are disclosed in the prior art discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claims 18-38, and 44, are rejected under 35 U.S.C. 103(a) as being unpatentable over Algots (US pat. 6,192, 064) in view of Osamu (JP 4314374).

With respect to claims 18, and 26-36, Algots discloses on figure 2 a grating based line narrowing device for line narrowing a laser producing high energy laser beams, said device comprising a grating 16 defining a grating face, a chamber for housing at least said grating, a helium source (col. 9, lines 40-41) for providing a helium purge for purging said chamber, a beam expanding means (18) for expanding a beam from said laser to produce an expanded beam, a tuning means for directing said expanded beam onto the grating face in order to select from said expanded beam a desired range of wavelength, and having a desired spectral width less than or equal to a desired maximum spectral width. Algots does not disclose a purge gas manifold for directing helium purge gas across the grating face to remove said purge gas layer to reduce optical distortion caused by said hot purge gas layer. However, Osamu discloses on figure 1 a purge gas manifold (40) for directing helium purge gas across the grating face to remove said purge gas layer to reduce optical distortion caused by said hot purge gas layer. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Algots by having a

purge gas manifold for directing helium purge gas across the grating face to remove said purge gas layer to reduce optical distortion caused by said hot purge gas layer for the purpose of reducing fluctuation of beam profile as taught by Osamu (See Abstract).

With respect to claims 19 and 44, Algots discloses on figure 2 a grating based line narrowing device for line narrowing a laser producing high energy laser beams, said device comprising a grating 16 defining a grating face, Algots does not disclose a second purge gas manifold having a plurality of small ports for directing the second purge gas across the grating face. However, Osamu discloses on figure 1 a second purge gas manifold (40) having a plurality of small ports, a fan and at least one manifold configured to force a flow of the second purge gas across the grating face, for directing the second purge gas across the grating face. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Algots by having a second purge gas manifold having a plurality of small ports for directing the second purge gas across the grating face to reduce optical distortion caused by said hot purge gas layer for the purpose of reducing fluctuation of beam profile as taught by Osamu (See Abstract).

With respect to claims 20 and 21, Algots and Osamu disclose everything as claimed above. In addition, Algots discloses an actively controlled grating curvature control mechanism providing active control of the shape of the grating face based upon feedback indicative of at least one laser output light pulse parameter (see fig. 2).

With respect to claims 22-25, Algots and Osamu disclose everything as claimed above. In addition, Algots discloses the control shape of the grating face comprises a complete curvature in the longitudinal axis of the grating and transverse to the longitudinal axis (see fig. 2).

With respect to claims 37 and 38, Algots and Osamu disclose everything as claimed above. In addition, Algots discloses wherein the heat removal mechanism comprises a purge gas manifold having at least one long very narrow slot, which is also in the form of a long rectangular shaped nozzle (see fig. 2).

Claims 39, 40, 45, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Algots and Osamu ('374) as applied to claim 1 above, and further in view of Osamu (JP5-167172) et al.

With respect to claims 39, 40, 45, and 49, Algots and Osamu '374 disclose substantially all the structure set forth in the claimed invention including a second purge. Algots and Osamu '374 fail to disclose the helium purge gas flow being about 2 liters per minute and wherein the second purge gas flow through the manifold is less than 20 liters per minute. However, Osamu '172 discloses the helium purge gas flow is about 2 liters per minute and less than 20 liters per minute in the second purge. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify Algots and Osamu (1374) by having the helium purge gas flow being about 2 liters per minute and less than 20 liters per minute in the second purge for the purpose of electively cooling off the heat generated in the grating.

Claims 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Algots (US pat. 6,192, 064) in view of Osamu (JP 4314374) in further in view of Titus et al. (US pat. 6,496,528).

With respect to claims 41-43, Algots and Osamu disclose a line narrowing device for line narrowing a laser producing high energy laser beams without specifically disclosing a vacuum pump that produce a pressure of about 1 to 10 millibars and where the vacuum is chosen so that gas molecules inside said chamber have mean free path of between 5 cm and 30 cm. However, a vacuum pump that produces a pressure of about 1 to 10 millibars and where the vacuum is chosen so that gas molecules inside said chamber have mean free path of between 5 cm and 30 cm is well taught by Titus (see fig. 10, and col. 7, lines 58-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Algots and Osamu (1374) by having vacuum pump that produce a pressure to reduce the optical effects of the hot gas layer, as disclose in the abstract.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See In re Goodman, 11 F.3d 1046, 29 USPQZd 2010 (Fed. Cir. 1993)., In re Longi. 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel. 422 F.2d 438, 164 MSPQ 619 (CCPA 1970)', and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 15-17, and 18-49 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of US pat. 6,778,584. Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a obviousness-type double patenting rejection because the conflicting claims have in fact been patented.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ershow (US pat. 6,240,110) discloses a line narrowing device for line narrowing a laser producing high energy laser beams without specifically disclosing a purge gas manifold for directing helium purge gas across the grating face to remove said purge gas layer to reduce optical distortion caused by said hot purge gas layer

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is 571-272-8596. The examiner can normally be reached on 9am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Minsun Harvey

Supervisor
Art Unit 2828

E.U